

Claims

[c1] 1. A process for preparing a plurality of multi-layered filaments from multiple thermoplastic synthetic polymers comprising:
separately melting and extruding multiple thermoplastic synthetic polymers into separate molten polymer flow streams;
distributing said separate molten polymer flow streams into separate planar molten polymer flow streams;
then filtering said separate planar molten polymer flow streams; and
feeding said separate planar molten polymer flow streams into a spinneret comprising a plurality of separate polymer flow passages, wherein each planar molten polymer flow stream is fed to a separate series of said polymer flow passages communicating with spinneret exit orifices, which passages are aligned such that multiple molten polymer flow streams emerging from said exit orifices are directed into contact with one another to form multi-layered filaments.

[c2] 2. The process of claim 1, further comprising cooling and attenuating said multi-layered filaments so formed with fluid exiting fluid jets positioned adjacent said plurality of spinneret exit orifices.

[c3] 3. The process of claim 1, wherein the number of multiple thermoplastic synthetic polymers is two.

[c4] 4. The process of claim 1, wherein the number of multiple thermoplastic synthetic polymers is greater than two.

[c5] 5. An apparatus for spinning a plurality of multi-layered filaments from multiple thermoplastic synthetic polymers comprising:
multiple extruders for separately melting and extruding multiple thermoplastic synthetic polymers into molten polymer flow streams;
separate distribution manifolds downstream of and communicating with said extruders for distributing said separate molten polymer flow streams into separate planar molten polymer flow streams;
separate filters downstream of and communicating with said distribution

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manifolds for filtering said separate planar molten polymer flow streams; and a spinneret, downstream of and communicating with said filters, comprising a plurality of separate polymer flow passages for transporting each of said separate planar molten polymer flow streams to a plurality of spinneret exit orifices, said passages being aligned such that separate molten polymer flow streams emerging from the exit orifices come into contact with one another to form multi-layered filaments.

[c6] 6. The apparatus of claim 5, further comprising fluid jets positioned adjacent said spinneret exit orifices to provide fluid for cooling and attenuating said multi-layered filaments.

[c7] 7. The apparatus of claim 5, wherein said distribution manifolds are coat hanger manifolds.

[c8] 8. The apparatus of claim 5, which is configured for two thermoplastic synthetic polymers.

[c9] 9. The apparatus of claim 5, which is configured for more than two thermoplastic synthetic polymers.

[c10] 10. A melt spinning beam for forming a plurality of multi-layered filaments from multiple thermoplastic synthetic polymers which comprises multiple polymer inlet passages each communicating with separate multiple coat hanger distribution manifolds, separate filters downstream of and communicating with each coat hanger distribution manifold, and a spinneret downstream of and communicating with said filters, said spinneret having a plurality of separate polymer flow passages communicating with exit orifices for spinning of said multi-layered filaments.

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